

4. 1797; Bhattacharya *et al.*, *J. Bombay nat. Hist. Soc.* 92: 136-137. 1995.

Perennial herb. Stem with longitudinal striations, scabrous. Leaves simple, opposite, distichous, base narrow, apex acuminate, generally 1-2 dentate in lower part of lamina. Heads solitary in the leaf axils, 1-1.5 cm in diameter, heterogamous, radiate. Disc florets hermaphrodite, fertile, involucre hemispherical; peduncles hairy; bracts 2-seriate; outer linear, shortly acuminate, acute or rounded at apex, inner lanceolate, acuminate. Palea membranous, folded, oblong-lanceolate, acute. Florets bisexual; corolla yellow; ligulate in female flowers, 5-fid at apex. Style branched in the appendix, hairy at the apex. Achenes obovoid, more or less compressed, cuneate, rugulose or glabrous, ray flattened above. Disc tetragonal, laterally compressed. Pappus minutely scaly, short.

Fl. & Fr.: December-April.

Specimen examined: Shimpale 101.

Distribution: Islampur in Sangli district.

Note: Earlier it was known only from

Tiruppur, Coimbatore from the State of Tamil Nadu.

ACKNOWLEDGEMENTS

We thank Liliana Katinas, La Plata, Argentina; the Head, Department of Botany, Shivaji University, Kolhapur, the Principal, Krishna Mahavidyalaya, Shivnagar, Rethare Bk., District Satara, for facilities and the Botanical Survey of India, Western Circle, Pune for herbarium and library facilities.

November 15, 2001

C.B. SALUNKHE

Krishna Mahavidyalaya, Shivnagar,

Rethare Bk., Satara 415 108,

Maharashtra, India.

V.B. SHIMPALE

M.M. SARDESAI

S.R. YADAV

Department of Botany,

Shivaji University,

Kolhapur 416 004,

Maharashtra, India.

REFERENCES

- BHATTACHARYA, A., M.C. BISWAS & H.S. DEBNATH (1995): A new genus for India. *J. Bombay nat. Hist. Soc.* 92: 136-137.
- BURKAT, A. & M.N. CARERA (1953): Estudios Sobre Malezas Morfologia Vegetativa y Germinacion del "Sunchillo" (*Wedelia glauca*). *Darwiniana*, t. 10, No. 2: 113-144.
- PRABHAKAR RAJU, C. & R.R. VENKATA RAJU (1999): *Cyathocline manilaliana* (Asteraceae) — a new species from Andhra Pradesh, India. *Rheedea* 9(2): 151-154.
- RAO, R.R., H.J. CHOWDHERY, P.K. HAJRA, S. KUMAR, P.C. PANT, B.D. NAITHANI, B.P. UNIYAL, R. MATHUR & S.K. MAMGAIN (1988): *Florae Indicae Enumeratio - Asteraceae*. BSI, Calcutta.
- HAJRA, P.K., R.R. RAO, D.K. SINGH & B.P. UNIYAL (1995a): *Flora of India, Asteraceae (Anthelmideae-Heliantheae)*. BSI, Calcutta, pp vii. + 454.
- HAJRA, P.K., R.R. RAO, D.K. SINGH & B.P. UNIYAL (1995b): *Flora of India, Asteraceae (Inuleae-Vernonieae)*. BSI, Calcutta, pp. vii + 411.

41. EMENDING OF AN ENDEMIC AND CRITICALLY ENDANGERED SPECIES
CINNAMOMUM WALAIWARENSE KOSTERM., FAMILY LAURACEAE,
OF KALAKAD-MUNDANTHURAI TIGER RESERVE, INDIA

(With one text-figure)

Kostermans (1983) described a new species, *Cinnamomum walaiwarensense* based on fruiting specimens (26252 & 26301, K, L) collected during July 1976 in the southern

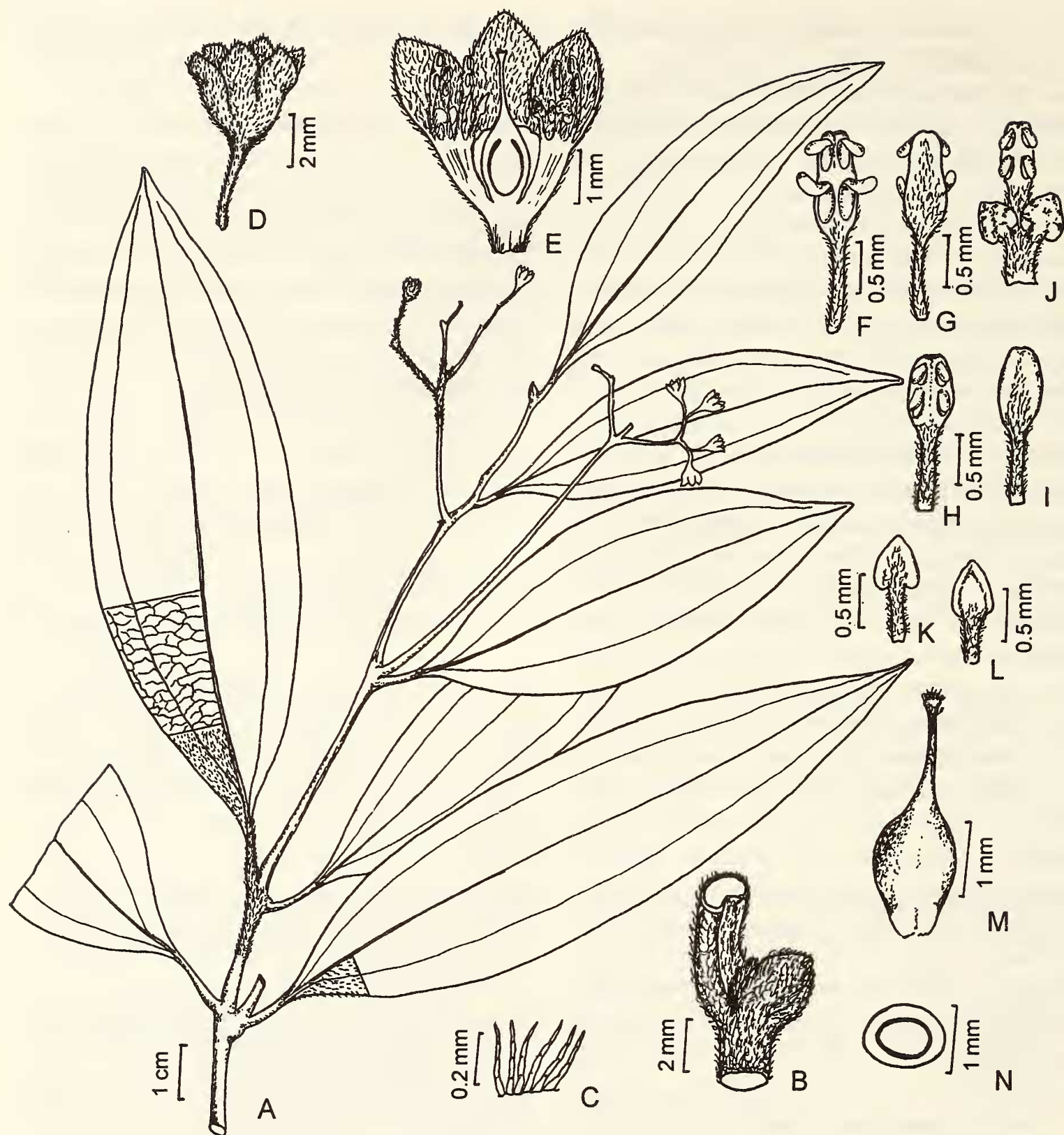


Fig. 1: *Cinnamomum walaiwarens*; A. Flowering twig, B. Node, C. Sericeous hairs, D. Flower, E. Longitudinal section of flower, F. I row stamen (ventral side), G. I row stamen (dorsal side), H. II row stamen (ventral side), I. II row stamen (dorsal side), J. III row stamen (ventral side), K. Staminode (dorsal side), L. Staminode (ventral side); M. Ovary; N. Cross section of ovary

tropical wet evergreen forest of Walaiwar Cardamom Estate at about *c.* 1,000 m above msl in West Tinnevely, currently the Kalakad-Mundanthurai Tiger Reserve (KMTR) in India. Narrow distribution and sparse population within

the KMTR make this species endemic and critically endangered. During the inventory in 1999, flowering specimens were collected. Based on the floral characters and an illustration, the earlier description is emended here.

Cinnamomum walaiwarens Kosterm. in Bull. Bot. Surv. India 25:119. 1983.

Tree, up to 15 m high and 115 cm dbh; bark very smooth, light brown, *c.* 0.6 mm thick; live bark *c.* 3 mm thick, light brown, slimy, without odour. Wood white, odourless. Branchlets: tender ones sericeous, quadrangular; mature ones subterete to terete, subglabrous to glabrous, densely and finely subsericeous at apical end; hairs 0.2-0.3 x *c.* 0.02 mm. Terminal buds small, with similar indumentum. Leaves opposite, chartaceous, oblong-lanceolate, 5-14.7 x 1.9-4 cm, acute or acuminate at base, entire at margin, obtusely acute, subacuminate or acuminate at apex; glabrous, smooth, glossy above; densely and finely sericeous below; midrib slender, prominent, impressed above; raised and canaliculate below, glabrous above, subsericeous below; subbasal lateral nerves till acumen base, prominent above, raised and canaliculate below; secondary nerves faint, parallel, horizontal, 2-4 mm apart; petioles 8-14 x 1-2 mm, sericeous, subterete, concave above, convex below. Panicles axillary, up to 8.5 cm long; tender ones quadrangular, sericeous; matured ones subterete or terete, glabrous; primary branchlets up to 6.5 x 0.12 cm; secondary branchlets up to 20 x 0.8 mm; tertiary branchlets up to 5 x 1 mm; pedicels up to 4 x 1 mm, quadrangular, sericeous; bracts deciduous. Flowers *c.* 4.4 x 4.4 mm. Tepals in 2 rows, 3 + 3, ovate, sericeous, *c.* 3 x 2 mm. Stamens 9, in 3 rows, 3 in each row; I row antitepalous, introrse, eglandular, *c.* 2.6 x 0.6 mm; II row antitepalous, introrse, eglandular, *c.* 2.2 x 0.6 mm; III row antitepalous, extrorse, opposite to I row, glandular, *c.* 2.2 x 1 mm; glands 2 on each filament, cordate, glabrous, *c.* 0.45 x 0.45 mm; anthers 4-celled, elliptic, opening up by forward flaps. Staminodes 3, opposite to II row, sagittate, stipitate, densely sericeous to sparse above, *c.* 1.8 x 0.4 mm. Ovary superior, ellipsoid, 1-celled, glabrous, *c.* 1.7 x 1.1 mm; ovule solitary, pendulous; style

glabrous, *c.* 1 x 0.2 mm; stigma subpeltate, *c.* 0.2 x 0.2 mm. Immature fruits ellipsoid, apiculate. Perianth tube cup-shaped, deep, rather fleshy, conspicuously and longitudinally ribbed, slightly more than half of basal part of tepals, indurate, persistent; cup base obconical, merging into obconical short pedicel, *c.* 5 x 4 mm.

Specimens examined: Tamil Nadu, Tirunelveli district, Kakachi, 7.iv.1999, *c.* 800 m, M.B. Viswanathan & U. Manikandan 3859.

Local name: Elavangam in Tamil.

Note: Kostermans (*l.c.*) distinguished this species from *Cinnamomum travancoricum* by the leaf shape and by its much shorter indumentum on the panicles. Longer and quadrangular pedicels, ovate tepals and sericeous hairy nature of the tepals and stamens further distinguish *C. walaiwarens*.

ACKNOWLEDGEMENTS

The senior author sincerely thanks the Ministry of Environment & Forests, New Delhi, for funding the project. Mr. U. Manikandan is thankful for the Senior Research Fellowship awarded. The authors acknowledge Mr. R.P.S. Kotwal IFS, Chief Wildlife Warden, Chennai, and Dr. V.K. Melkani IFS, Field Director & Conservator of Forests, Project Tiger, Tirunelveli, for permission to carry out research in the Tiger Reserve and to collect specimens. The help of the project staff, Mr. S. Pandidurai, S. Baskar and A. Lakshmikanthan, in the field and Mr. H. Sankar Artist, for illustration, is acknowledged.

November 15, 2001 M.B. VISWANATHAN
U. MANIKANDAN
*Sri Paramakalyani Centre
for Environmental Sciences,
Manonmaniam Sundaranar University,
Alwarkurichi 627 412,
Tamil Nadu,
India.*